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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,269	08/05/2003	Ming Gao Yao	12553/73	7073

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EXAMINER	
BLOUIN, MARK S	

ART UNIT	PAPER NUMBER
2627	

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09/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/634,269	YAO ET AL.	
	Examiner	Art Unit	
	Mark Blouin	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *20 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-14 and 16-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-14, and 16-32* _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Response to Amendment

- The reply filed on August 20, 2007 was applied to the following effect: Claims 1,10,19, and 27 were amended.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4,10-13,19-26, and 27-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Cox et al (US 5,644,452).

3. Regarding Claims 1 and 10, Cox et al shows (Figs. 1-3) a system for a magnetic head arm assembly (HAA) comprising: a first component (14) having a first cavity (21) to be coupled to an arm portion (16) having an arm cavity (20) via insertion of a pin element (18), independent of the first component and the arm portion, through the first cavity and the arm cavity and welded (*to join (metals) by applying heat, sometimes with pressure and sometimes with an intermediate or filler metal having a high melting point*) between said first component and said arm portion, wherein said first component (14) is selected from the group consisting of a head suspension portion (54) and a flex cable portion (14).

4. Regarding Claims 2 and 11, Cox et al shows (Figs. 1-3) the system, wherein said head suspension portion (54) is a hard disk drive head gimbal assembly (HGA) - (Col 4, line 67).

5. Regarding Claims 3 and 12, Cox et al shows (Figs. 1-3) the system, wherein said flex cable portion (14) is a hard disk drive (Abstract and Col 1, lines 13-19) flex cable.

6. Regarding Claims 4 and 13, Cox et al shows (Figs. 1-3) the system, wherein said arm (14) portion is a hard disk drive (Col 1, lines 16-20) arm.

7. Regarding Claims 19 and 27, Cox et al shows (Figs. 1-3) a system for a magnetic head arm assembly (HAA) comprising: a first component (50) to be coupled to a second component (62) having an arm cavity (44) via a pin (42) independent of the first component and the second component and welding said first component to said second component, wherein said first component is selected from the group consisting of a head suspension portion (54), a flex cable portion (62), and a flex circuit portion (62), and said second component is an arm portion (52).

8. Regarding Claims 20 and 28, Cox et al shows (Figs. 1-3) the system, wherein said first component is a hard disk drive slider frame (Col 4, line 67; a frame supporting the slider is inherent to a HAA) and said second component is selected from a group consisting of a hard disk drive head gimbal assembly (HGA), and a hard disk drive slider (Col 4, line 67; a slider holding the transducer head is inherent to a HAA)

9. Regarding Claims 21 and 29, Cox et al shows (Figs. 1-3) the system of claim, wherein said head suspension portion (54) is a hard disk drive head gimbal assembly (Col 4, line 67).

10. Regarding Claims 22-24, and 30, Cox et al shows (Figs. 1-3) the system, wherein said flex cable portion (62) is a hard disk drive flex cable, said flex circuit portion (62) is a hard disk drive bridge flex circuit (BFC – flex circuit (62) bridges the connection), and said arm portion is a hard disk drive arm (Abstract).

11. Regarding Claim 25,26,31, and 32, Cox et al shows (Figs. 1-4) wherein said first component is coupled to said second component via a type of welding selected from the group consisting of ultrasonic welding, solder bump welding, and laser welding (Col 3, line 52).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 5,7-9,14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox et al (US 5,644,452) in view of Cubero Pitel (US 6,160,239).

14. Regarding Claims 5,9,14, and 18, Cox et al shows all the features described, *supra*, but does not show a copper welding pin interference fitted into a first cavity and into the arm cavity to couple the first component to the arm portion.

Pitel shows (Figs. 4-6) a copper welding pin (21 – Col 1, line 53) interference fitted into a first cavity and into the arm cavity to couple the first component to the arm portion.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to couple the first component to the arm portion of Cox et al using the copper welding pin as taught by Cubero Pitel. The rationale is as follows: One of ordinary skill in the art at the time the invention was made would have been motivated to couple the first component to the arm portion of Cox et al using the copper welding pin as taught by Cubero Pitel in order to secure two substrates together with art recognized equivalent methods (soldering welding, application of heat).

15. Regarding Claims 7,8,16, and 17, **Official Notice** is taken that holes and recessions can be of circular and rectangular shape, and other various shapes.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to shape a hole to be circular or rectangular. The rationale is as follows: One of ordinary skill in the art at the time the invention was made would have been motivated to shape a hole to be circular or rectangular in order to match the shape of the pin for insertion.

Response to Arguments

16. Applicant's arguments filed August 20, 2007 have been fully considered but they are not persuasive.

Applicant asserts on page 9 :

"Each of the independent claims have been amended to more fully set forth the claimed embodiments by describing embodiments wherein the surface of a pin element is directly attached to a surface of a first component and a surface of an arm portion *(e.g.*, as described in claim 1). Such a feature is neither shown nor suggested by the cited Cox reference. *See e.g.*, cited Figs. 1 and 2. In Figure 1, the cited pin element (18) is not directly attached to either the cited first component (14) or the cited arm component (16); the cited pin element (18) is instead inserted through the guide hole 21 and hole 20, precluding direct attachment."

In Claims 1 and 9 it is stated that the pin element is independent of the first component and arm portion, and is directly attached to the surface. The Examiner maintains that Cox is showing that exact arrangement. The pin (18) is independent of the first component (14) and arm portion (16) and is directly attached utilizing a solder joint (12). If the pin was not directly attached, the first component (14) and arm portion (16) would not be held together. The same argument applies to Claims 19 and 27. Therefore, the rejection of Claims 1-5, 7-14, and 16-32 are upheld.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Blouin whose telephone number is 571-272-7583. The examiner can normally be reached on M-F from 6:00 to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Bill Korzuch, can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark Blouin
Patent Examiner
Art Unit 2627
August 23, 2007

/William R. Korzuch/

SPE, Art Unit 2627